Ogmius

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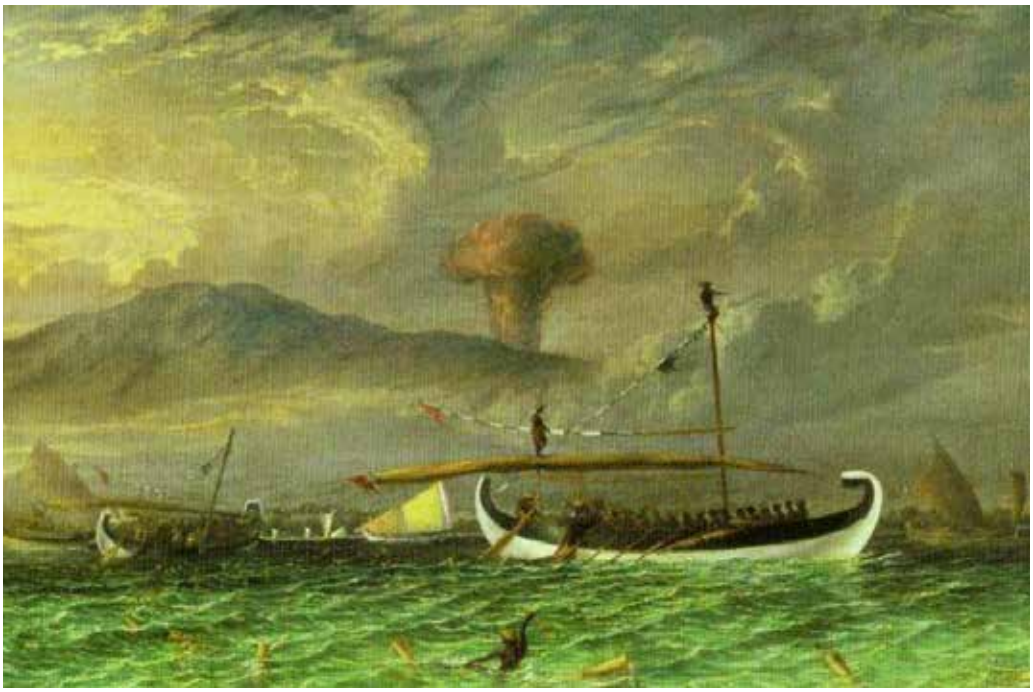

Possible depiction of the eruption of the Tambora. Artist unknown.

OGMIUS EXCHANGE

The Postmodern Prometheus

In this issue of Ogmius we feature an article by Dr. Jack Stilgoe, a Lecturer in Science and Technology Studies at University College London. He is the author of "Experiment Earth – Responsible Innovation in Geoengineering" (published by Routledge). This article is based on a piece originally published in the Guardian newspaper.

April 2015 marked the bicentennial of the largest volcanic eruption in recorded history. The explosion of Mount Tambora in Indonesia could be heard a thousand miles away. Thousands living around the mountain died, but its effects spread far further and longer, and its cultural echoes continue to this day. The ash and sulfur from the volcano stretched miles up into the stratosphere, spreading around the globe. The volcano's impact on the world's weather meant that 1816 became known as the 'year without a summer'. In a grand villa on the shores of Lake Geneva, four British friends escaping the cold and rain challenged each other to write ghost stories. Their host, George (known to most people as Lord Byron) was already an established poet. But it was Mary (then still a teenager) whose effort would change the way we think about technology forever. Her story was published two years later as Frankenstein, and given the subtitle 'The Modern Prometheus' after the Titan who stole fire from the gods. It was, in Shelley's own

THIS ISSUE

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http://sciencepolicy.colorado.edu/ogmius

words, a story 'on which would Speak to the mysterious fears of our nature and awaken thrilling horror'.

Lord Byron, Mary Shelley and friends had no idea that their holiday had been ruined by a volcano on the other side of the world. In the 200 years since, scientific understanding of the Earth system has explained how volcanoes can cool the planet and inspired some techno-enthusiasts to ask a Promethean question – what if we could mimic a volcano and counteract global warming?

Depiction of the summer of 1816 , The house where Frankenstein was created. Photograph reproduction of a 1933 steel engraving, The Granger Collection, New York.

The possibility of geoengineering or, as a report earlier this year from the National Academies relabeled it, 'climate intervention', began as Cold War technological hubris. In the 1960s, when global warming was first brought to the attention of the American president by his own scientific advisory committee, the presumption was that technology would be our salvation, either by shading the surface of the planet or by removing greenhouse gases. The first option, removing greenhouse gases from the atmosphere, would mean brute-force reverse-engineering of the industrial revolution. The alternative, reflecting sunlight, was presented as comparatively easy. All it would take was a few million tonnes of sulfur dioxide in the stratosphere, as Tambora had done in 1815. The only challenge was getting it up there. Various options were suggested: airplanes, missiles and giant helium balloons with hoses.

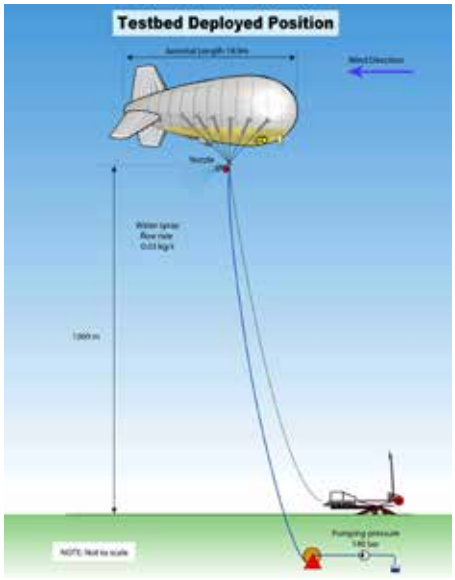
However, the more environmental scientists learned about the precarious balance of the Earth system, the further geoengineering fell out of fashion. Many scientists, especially those who sounding the alarm about climate change and attempting to persuade policymakers to change their ways, found the seductive offer of a technological fix nauseating. They worried that the mere suggestion of geoengineering would give governments an excuse for continued inaction – like offering liposuction to a morbidly obese patient.

Scientists' nervousness led to a form of taboo – a tacit agreement that geoengineering should not be discussed in polite company. It didn't last long, however. Climate scientists were burdened with knowing the effects of our continued pollution. Humanity's responsibility for the climate was becoming ever clearer, as was the extent of our neglect. Repeated failures of international climate talks contributed to a profound sense of despair among scientists and environmentalists. In 2006, Paul Crutzen, who had won a Nobel Prize for explaining the hole in the ozone layer, gave geoengineering a veneer of respectability, arguing that it could be a sword with which to cut the Gordian knot of climate change.

Geoengineering is TED-talk innovation: a seductive, 'why not?' idea, inspired by nature, whose uncertainties are easy to overlook in an 18-minute slideshow. But, as with other technological fixes, it demands a form of magical thinking. There would be nothing cheap, quick and easy about geoengineering. The latest report from the Intergovernmental Panel on Climate Change makes clear that carbon dioxide remains in the atmosphere for generations. Even if we were able to shade the planet, the technology would only mask the problem it was meant to solve. Withdrawal would require unimaginable societal willpower. If our future geoengineering machines, whatever form they might take, were turned off, the continued build-up of greenhouse gases would mean that the climate would switch to a new state within months, making adaptation all but impossible.

For the last three years, I have been working with scientists in one of the world's first geoengineering research projects. I have been trying to help them make sense of the social

Mary Shelley's Frankenstein by Universal (1931) is one of the earliest movie adaptations from page to screen.



A testbed proposed as part of the Stratospheric Particle Injection for Climate Engineering (SPICE) project.

and political issues that surround them. They were taken by surprise when an experiment they wanted to conduct – using a benign contraption made from a helium balloon, a hose and a water pump – attracted criticism from scientists and environmental interest groups. While the scientists saw their work as informing the debate on geoengineering, critics thought that they were stepping onto a slippery slope towards a geoengineered future. The scientists called off their experiment and, as I describe in my recent book, their experience has become a useful test case in responsible research and innovation. But others are following in their wake. The number of scientists interested in geoengineering is growing. Most still find the idea distasteful, but there is a palpable and growing sense of excitement about running experiments on computer models as well as on the environment itself. The message of Frankenstein is more relevant than ever. Experiments with potentially monstrous ramifications should be handled with care.

Jack Stilgoe
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Geoengineering-relevant CSTPR Publications

Dilling, L and R Hauser (2013), Governing geoengineering research: why, when and how? Clim. Change 121 (3) 553-565, Dec 2013.

Hale, B. and L. Dilling (2011), Geoengineering, Ocean Fertilization, and the Problem of Permissible Pollution. Science Technology & Human Values 36 (2) 190-212, Mar-11 2011.

Hale, B. (2013), Remediation vs. Steering: An Act-Description Approach to Approving and Funding Geoengineering Research. Designer Biology: The Ethics of Intensively Engineering Biological and Ecological Systems, Ed. J. Basl and R. Sandler197-217, Lexington Books, July 2013.

Hale, B. (2012), The World That Would Have Been: Moral Hazard Arguments Against Geoengineering. Engineering the Climate: The Ethics of Solar Radiation Management, Ed. C.J. Preston113-131, Lexington Books.

Pielke, R (2009), Air capture update. Nat. Geosci. 2 (12) 811-811, Dec 2009.

Pielke, RA (2009), An idealized assessment of the economics of air capture of carbon dioxide in mitigation policy. Environ. Sci. Policy 12 (3) 216-225, May 2009.

RESEARCH HIGHLIGHT

Research on Emissions, Air Quality, Climate, and Cooking Technologies in Northern Ghana (REACCTING)

Our Research Highlight describes a project currently underway at CSTPR led by Research Scientist Katie Dickinson. Katie is an environmental economist who studies how humans behave in the face of environmental risks. Her research topics have included sanitation behaviors in India, malaria-related decision making in Tanzania, willingness to pay for mosquito control in Wisconsin and Florida, and homeowners' wildfire mitigation choices in Colorado.

……..

A woman in Ghana cooks over a traditional, open fire. Photo: Global Alliance for Clean Cookstoves.

Cooking over open fires using solid fuels like wood and charcoal is a widespread practice throughout the world. This behavior impacts local and regional air quality, global climate, and human health: household air pollution from biomass burning is estimated to contribute to four million premature deaths annually. In order to be effective and generate useful insight into potential solutions to this complex problem, cookstove intervention studies must both select cooking technologies that are appropriate for local socioeconomic conditions and cooking culture, and include comprehensive and interdisciplinary measurement strategies along a continuum of outcomes.

REACCTING (Research on Emissions, Air Quality, Climate, and Cooking Technologies in Northern Ghana) is an ongoing interdisciplinary randomized cookstove intervention study in the Kassena-Nankana Districts of Northern Ghana. The study tests two types of biomass burning stoves that were identified as having the potential to meet local cooking needs; the stoves also represent different "rungs" on the cookstove technology ladder, including an affordable and locally-made low-tech rocket stove and an imported, highly efficient gasifier stove. The 200 intervention households were randomized into four different intervention arms. In three groups, households received different combinations of two improved stoves, while the fourth group serves as a control for the duration of the two year study. (At the end of the study, these households will get to choose which stoves they would like.) Throughout the study period, ongoing measurements are made across groups at multiple steps in the causal chain linking the intervention to final outcomes of interest. These measurements assess stove use and cooking behavior, cooking emissions, household air pollution and personal exposure, health burden, and local to regional air quality.

Preliminary data analysis suggests that households in the three intervention groups have been using their new stoves and have decreased their use of traditional stoves, though these effects vary across the different intervention arms: Groups A (two Gyapa) and C (one of each stove) have reduced their use of three stone fires more than Group B (two Philips). Results also indicate that households express a high demand for cleaner cooking technologies. Specifically, a set of choice experiments conducted at the beginning of the study shows relatively high demand for reduction in smoke from cookstoves as well as reduction in fuel use, while households placed relatively little value on reducing cooking time, and did not indicate a preference for domestically-made (as opposed to imported) stoves.

Subsequent analysis and modeling of results will tackle a range of interdisciplinary science questions, including examining ambient exposures to which the regional population is exposed, assessing how those exposures might change with different technologies and behaviors, and

RESEARCH HIGHLIGHT

estimating the comparative impact of local behavior and technological changes versus regional climate variability and change on local air quality and health outcomes.

For more information see the study website (http://www.reaccting.com) and protocol paper: http://www.biomedcentral.com/1471-2458/15/126.

Katie will be continuing her cookstove research in a new project that is described below.

Katie Dickinson
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Displayed are two pollution-reducing cookstoves introduced to Ghanian residents. Photo: Mike Hannigan.

CENTER NEWS

Katie Dickinson new NSF project: Prices, Peers, and Perceptions: Field Experiments on Technology Adoption in the Context of Improved Cookstoves

Katie Dickinson, along with co-PIs Zachary Brown (NC State), Michael Hannigan (CU-Boulder Engineering), and Abraham Oduro (Navrongo Health Research Centre), have a new project that has been recommended for funding by the NSF, described below:

Adoption of potentially welfare-improving technologies remains frustratingly low in many contexts. Improved cookstoves are a prime example: while cleaner-burning stove technologies have potential health, environmental, and social benefits, efforts to disseminate these technologies have fallen short and the practice of cooking with biomass over open fires remains dominant throughout much of the developing world. The central aim of this proposal is to study how economic incentives ("prices"), social learning ("peers"), and subjective beliefs ("perceptions") interact to influence technology adoption dynamics. We do so through a field experiment in Northern Ghana that offers new stoves at different price levels to groups of households with and without social ties to households that have already received stoves as part of a prior NSF-funded study in this region: the REACCTING study (www.reaccting.com), also highlighted in this issue (see Research Highlight above). Results will inform future efforts to disseminate clean cookstoves and other welfare-enhancing technologies beyond the study area.

Our conceptual model of households' technology adoption and use decisions highlights multiple potential interactions among prices, peers, and perceptions. Key research questions that will be addressed through our experiments include how price affects perceived quality of a new technology, how these perceptions are modified by exposure to peers that have experience with the technology, and how perceptions change over time based on one's own experience and (objective and subjective) technology performance. We implement a novel identification strategy for identifying these effects, using the preexisting and exogenously controlled distribution of free stoves in combination with uncorrelated, cluster-randomized assignment to different stove subsidy levels. By explicitly measuring perceptions in conjunction with other outcome variables in the experiment (including both surveys and physical indicators of stove use and impacts on personal exposure to pollutants), the researchers will be able to test how prices and peers' prior adoption interact in belief formation – a key issue in the technology adoption literature.

Deserai Crow awarded NSF grant for flood project

The National Science Foundation (NSF) recently awarded Deserai Crow a 3-year grant for a project titled "Community Recovery and Colorado's Extreme Floods of 2013: Policy Learning in the Context of Resources, Coalitions, and Political Conditions."

Project Abstract: One of the most damaging natural hazards, flooding, annually causes billions of dollars in damage, response, and recovery losses for U.S. communities. As populations increase in flood prone areas, communities are becoming more vulnerable to floods. The responsibility for flood management has shifted from the federal to the local level and communities are now responsible for making decisions about if, how, and where to rebuild. Because of their potentially recurring nature, floods offer an opportunity for communities to learn from and adapt to these experiences

with the goal of increasing resiliency through reflection, modification of former policies, and adoption of new policies. By following the response to the September 2013 floods in Colorado communities, this study will investigate how communities successfully learn from extreme events to increase resilience and decrease vulnerability to future floods. The project seeks to contribute to the fields of public policy and natural hazards research with the following objectives: to advance knowledge of policy learning in the aftermath of extreme events; to advance knowledge of disaster recovery, specifically as it relates to the role that community processes, citizens, and other stakeholders play in promoting long-term recovery and resilience; and to inform governments of lessons from flood responses to the September 2013 floods, with the goal of contributing to the effectiveness of governance in flood-affected communities.

The PIs will conduct longitudinal comparative case studies of seven Colorado communities, located in Colorado's three most severely impacted counties from the September 2013 floods. This study will follow communities through their recovery and planning process over a period of three years. Four types of data will be used to examine flood recovery processes and outcomes. First, in-depth interviews will be conducted of participants in the planning and decision process of the community at three intervals during the recovery process. Second, surveys will be conducted with a larger sample of recovery process participants than those interviewed. Third, periodic surveys of community residents will be conducted. Finally, documents related to flood recovery and demographic data will also be gathered. Combined, these data will enable both qualitative and quantitative analysis of recovery processes and stakeholder participation, extent of damage, coalition beliefs and behavior, political context, and resource availability in communities.

Western Water Assessment NOAA grant recommended for funding for 5 years

The Western Water Assessment has been recommended for funding for another 5 years by the NOAA Regional Integrated Sciences and Assessment Program (RISA). WWA, which is within the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado-Boulder, addresses societal vulnerabilities related to climate, particularly in the area of water resources in Colorado, Utah, and Wyoming. WWA director Lisa Dilling stated she is "looking forward to another five years of innovative research, engagement with stakeholders, and rewarding interdisciplinary collaborations." For more information visit the WWA website: http://wwa.colorado.edu.

Deserai Anderson Crow 2015 Sabatier Award Winner for Best Conference Paper

Deserai Anderson Crow, along with Elizabeth A. Albright, received the 2015 Sabatier Award for Best Conference Paper in Science, Technology and Environmental Politics. Crow and Albright were rewarded for their work in their 2014 paper, "Learning Processes, Public and Stakeholder Engagement: Analyzing Responses to Colorado's Extreme Flood Events of 2013", as well as in their substantiation through data.

Degree in Three

Roger Pielke, Jr., helped design a new program at CU through which students can finish their undergraduate degrees in 3 years instead of the traditional 4 (or more) years. The program, "Degree in Three""is for "students who have their educational path planned out and who have a desire to enter the work force or graduate school ahead of their peers…To be eligible, students will typically need AP/IB credits or completed college level coursework." (See University of Colorado Degree in Three website: http://www.colorado.edu/degreeinthree.) The program was highlighted in a Daily Camera article, CU-Boulder Offering Students Path To Finishing Degree In 3 Years (http://www.dailycamera.com/cu-news/ci_27772109/cu-boulder-offering-students-path-finishing-degree-3).

Environmental Brigades

A new project at CSTPR offers student volunteers an opportunity to gain first-hand experience in environmental management and education by empowering community members in rural communities. During brigades, volunteers spend time with environmental committees to better understand the region's pressing environmental concerns and potential for improvement. Through interactive workshops and the implementation of physical projects, student volunteers provide the education and physical assistance necessary for these families to sustain long-term behavioral change, which will benefit the well-being of not only themselves but their surrounding environment as well. Subsequent brigades build on each other and therefore, projects are continued through successive phases year after year. Between brigades, an in-country team maintains relationships with community leaders to ensure the continuation of projects started by brigades and to provide follow-up on community members' feedback as well as next steps. See Environmental Brigades website: http://sciencepolicy.colorado.edu/students/environmental_brigades.

CENTER NEWS

AAAS workshop competition

For the second year, the Graduate Certificate Program in Science and Technology Policy at CSTPR organized a competition to select two CU-Boulder students to attend the AAAS "Catalyzing Advocacy in Science and Engineering" workshop in Washington, D.C. There they learned about Congress, the federal budget process, and effective science communication, and met with their Members of Congress and congressional staff. The competition is supported by the University of Colorado Graduate School (http://www.colorado.edu/GraduateSchool) and Center for STEM Learning (http://www.colorado.edu/csl).

The winners of the 2015 competition, Nicholas Valcourt and Thomas Reynolds, submitted the following reports about their experiences:

"Overall, the experience of attending this workshop and the value of the information presented was an extremely beneficial opportunity for me as I look to further my aspirations of using fact-based, scientific information to support and advocate for issues relevant to my work and research. The lineup of speakers and panel topics proved to be a great introductory crash-course in science advocacy and lobbying. I think that the programming on a whole proved mutually beneficial to AAAS and the participants present and I would support others in my cohort who exhibit interest in advocacy and policy to apply for the workshop next year." Nicholas Valcourt (CU Civil Systems Engineering)

"Participating in the 2015 Catalyzing Advocacy in Science and Engineering (CASE) workshop sponsored by AAAS was a great experience. The workshop greatly improved my understanding of and appreciation for the complex process by which our federal government funds science. Additionally, I have come to understand the necessity for scientists to advocate for science and the need for scientists to participate in the political process. Thanks to the efforts of AAAS and CU's Office of Government Relations, I was given the opportunity to meet with staffers of senators and representatives from Colorado in order to gain hands on advocacy experience. Furthermore the opportunity to meet with other graduate students interested in science policy and learn about possible career opportunities was quite valuable. I am very thankful to CSTPR, the Center for STEM Learning, and the University of Colorado Graduate School for sponsoring my participation in the CASE workshop and I hope they are able to continuing sponsoring other CU students in the future." Thomas Reynolds (CU Chemical and Biological Engineering)

Media and Climate Change Observatory (MeCCO) project highlighted

Max Boykoff's Media and Climate Change Observatory (MeCCO) project was featured in a University of Colorado Arts and Sciences Magazine article, CU team is all over the Daily Planet's front page; How do mass media drive the conversation on climate change? A team of researchers is on the story (http://artsandsciences.colorado.edu/magazine/2015/04/cu-boulder-team-is-busy-covering-the-daily-planet).

Lisa Dilling and Max Boykoff op-eds in the Boulder Daily Camera

Lisa Dilling and Max Boykoff had op-eds in the Daily Camera. Max's op-ed, Leveraging media, social sciences, humanities in climate change debate (http://www.dailycamera.com/editorial-roundtables/ci_28037600/maxwell-boykoff-tapping-value-media-social-sciences-humanities-climate-change), discusses his research findings that misperceptions about climate change, misleading debates and distractions can proliferate through the media and then prove detrimental to efforts to take action to mitigate carbon emissions or adapt to a warming world. Lisa's op-ed, Community involvement critical to adaptation, managing climate change risks (http://www.dailycamera.com/editorial-roundtables/ci_28037560/community-involvement-critical-adaptation-managing-climate-change-risks), addresses how we make decisions in a world where our experience of past climate is not necessarily a good guide to the future.

Roger Pielke, Jr. interview about FIFA scandal

Roger Pielke, Jr. was interviewed by Colorado Public Radio Colorado Matters (http://www.cpr.org/news/story/heart-fifas-troubles-accountability-cu-boulder-prof-says) about the FIFA scandal. Roger has written extensively about corruption at FIFA for the past several years. See, e.g., Pielke, Jr., R.A. (2013), How can FIFA be held accountable? Sport Manag. Rev. 16 (3) 255-267; Pielke, Jr., R. A. (2014), An Evaluation of the FIFA Governance Reform Process of 2011-2013. Managing the Football World Cup , Ed. S. Frawley and D. Adair 197-221, Palgrave Macmillan; Pielke, Jr., R. A. (2014), Can FIFA's Corruption Be Stopped? Foreign Policy, November 16 2014.

GRADUATE STUDENT, VISITOR & ALUMNI NEWS

Marilyn Averill presentations

Marilyn Averill, a PhD student in Environmental Studies who works with CSTPR, gave the following presentations:

Averill, M. (Feb. 2015). Decision Rules in Negotiating a New Climate Treaty. International Studies Association Annual Meeting. New Orleans.

Averill, M. (Sept. 2014). Barriers to Framing Claims as Rights Violations in U.S. Climate Litigation. 3rd UNITAR-Yale Conference on Environmental Governance and Democracy. New Haven.

Lydia Dixon awards

Lydia Dixon, a PhD student in the Environmental Studies Policy track who works with CSTPR, received a CU Graduate School Summer Dissertation Fellowship as well as a Beverly Sears graduate student grant in order to support her dissertation work on finding ways to improve wolf policy and management in Wyoming. The funding will be used to complete her field work, including interviews, surveys, and a pilot participatory GIS project in a small community near Grand Teton National Park.

Jordan Kincaid journal article

Jordan Kincaid, a PhD student in Environmental Studies who works with CSTPR, coauthored a new journal article with Matthew Fry and Adam Briggle that uses an environmental justice framework to analyze the distribution of shale gas development's costs and benefits in Denton, Texas:

Fry, M., A. Briggle, and J. Kincaid, Fracking and environmental (in)justice in a Texas city. Ecological Economics Volume 117, September 2015, Pages 97–107, http://www.sciencedirect.com/science/article/pii/S0921800915002438.

Gesa Luedecke presentation

CIRES Visiting Fellow Gesa Luedecke, who sits at CSTPR, gave a presentation at the Conference on Communication and Environment in June (with Anke Wessels): Communication about Perceptions and Assessments of Climate Change Risks among Regional Stakeholders of the North Sea Coast in Germany: A Transdisciplinary Approach, see https://theieca.org/conference/coce-2015-boulder/presentations/communication-about-perceptions-and-assessments-climate for full abstract.

Sam Schramski visit

Sam Schramski is a visiting postdoctoral scholar from the Federal University of Amazonas in Manaus, Brazil, housed in the Graduate Program in Amazonian Society and Culture. Sam is working on analyzing and writing up research from his projects on local and community-level climate change adaptation in the rural Amazon, as well as work he conducted in South Africa. His most recent fieldwork was conducted last year, where he worked on a project that focused on perceptions of climate change among riverine populations living in flooded forests. Additional components included a study of agrobiodiversity amongst the rural poor and a study on the exchanges of food and information within these isolated contexts. Closer to home, he is also working with Center faculty, including Deserai Crow, on a project that would combine research on public perceptions and media coverage of climate change with data from legislative interviews. The hope is to make this project comparative between Colorado and the US and Brazil, with the expectation of establishing a database for the results.

Jessica Weinkle article

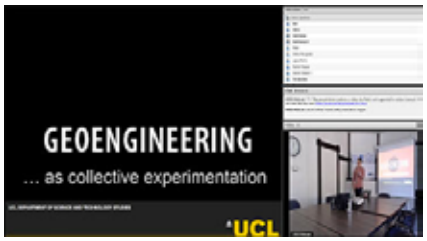
CSTPR alum Jessica Weinkle, now an Assistant Professor in Coastal and Ocean Policy at the University of North Carolina Wilmington, authored a journal article, A Public Policy Evaluation of Florida's Citizens Property Insurance Corporation, Journal of Insurance Regulation, Vol. 34, No. 2, http://www.naic.org/documents/prod_serv_jir_JIR-ZA-34-02-EL.pdf.

CENTER EVENTS

Center cosponsors Conference on Communication and Environment, Max Boykoff is program co-chair

CSTPR was a cosponsor of the Conference on Communication and Environment (COCE) held in Boulder June 11-14, which attracted over 350 participants. COCE was intended to "discuss, explore and bridge the many divides, challenges and opportunities facing environmental communication and practice" (https://theieca.org/conference/coce-2015-boulder). Several CSTPR members participated in COCE. Max Boykoff was a program co-chair. Deserai Crow and her students submitted a paper titled "Risk, Failure, and Hazard Narratives in Local Media Coverage of Natural Disasters: Can We Learn from our Mistakes?" Visiting Fellow Gesa Luedecke's presentation is described above. She also presented a poster, "What's Your Motivation? Individual Drivers for Sustainable Behavior."

Jack Stilgoe talk: Geoengineering as a Collective Experiment



Dr. Jack Stilgoe, a Lecturer in Science and Technology Studies at University College London, visited CSTPR in April and gave a talk on "Geoengineering as a Collective Experiment". He expands upon his views in the Exchange article (see p. 1).

Roger Pielke, Jr. talk: On Witch Burning and Other Incendiary Topics

Roger Pielke, Jr. spoke to the CU chapter of the Forum on Science, Ethics and Policy about the reaction to his peer-reviewed research from the White House science advisor as well as a social and mainstream media campaign to have him fired from his job, which formed the basis for a member of Congress to open an investigation of him.

Roger Pielke, Jr. talk and webcast: Technology Assessment as Political Myth?

Roger Pielke's March 2015 talk at the PACITA 2nd European TA Conference: The Next Horizon of Technology Assessment—"Technology Assessment as Political Myth?"--is available via webcast (http://slideslive.com/38893099/technology-assessment-as-political-myth).

Spring 2015 noontime seminar webcasts

All of the following CSTPR spring 2015 noontime seminars are now available via webcast: http://sciencepolicy.colorado.edu/news/webinars.

Sugar, Spice And Everything Nice: Science and Policy of "Sex Testing" in Sport
Roger Pielke, Jr., Center for Science and Technology Policy Research and Environmental Studies, CU Boulder

When Basic or Applied is not enough: Utilizing a Typology of Research Activities and Attributes to Inform Usable Science
Elizabeth McNie, Western Water Assessment, CU Boulder

Mystery of the Sea: A Study of Why the U.S. Has Yet to Construct an Offshore Wind Farm
Marisa McNatt, Center for Science and Technology Policy Research and Environmental Studies, CU Boulder

Ignorance Isn't Bliss: Why Historical Emitters Owe Compensation for Climate Change
Paul Bowman, Center for Science and Technology Policy Research and Environmental Studies, CU Boulder

Fracking In Denton, Texas: Who Benefits and Why Was it Banned?
Jordan Kincaid, Center for Science and Technology Policy Research and Environmental Studies, CU Boulder

Mobilizing Individual Responsibility Through Personal Carbon Budgeting
Steven Vanderheiden, Center for Science and Technology Policy Research, Political Science, and Environmental Studies, CU Boulder

CENTER PUBLICATIONS

Below is a sample of recent publications by CSTPR faculty (CSTPR authors bolded):

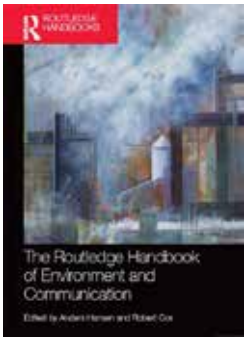
Dominant Frames In Legacy And Social Media Coverage Of The IPCC Fifth Assessment Report

by Saffron O'Neill, Hywel T. P. Williams, Tim Kurz, Bouke Wiersma, and **Maxwell Boykoff**, *Nature Climate Change*, Vol. 5, 380–385, 2015

Abstract: The media are powerful agents that translate information across the science–policy interface, framing it for audiences. Yet frames are never neutral: they define an issue, identify causes, make moral judgements and shape proposed solutions. Here, we show how the IPCC Fifth Assessment Report (AR5) was framed in UK and US broadcast and print coverage, and on Twitter… Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2015.15.pdf

Communicating In the Anthropocene: The Cultural Politics of Climate Change News Coverage Around The World

by **Maxwell T. Boykoff**, **Marisa M. McNatt** and Michael K. Goodman, Chapter 18 in *The Routledge Handbook of Environment and Communication*, Edited by Anders Hansen, Robert Cox. 2015.



Excerpt: Over the past few years, the number of Reuters stories about climate change has continued to decline. This was consistent with trends across other media outlets globally due largely to political economic trends of shrinking newsrooms and fewer specialist reporters covering climate stories with the same frequency as before. In 2010, The Wall Street Journal and The Christian Science Monitor closed their environmental blogs. Three years later, In January 2013, The New York Times dismantled its environment desk, assigning the reporters and editors to other departments, and discontinued its Green blog two months later… Read more: https://books.google.com/books?id=ngPwBgAAQBAJ&lpg=PT1&ots=E40GPF-Rg-&dq=The%20Routledge%20Handbook%20of%20Environment%20and%20Communication&pg=PT345#v=onepage&q&f=false

Lens on Climate Change: Making Climate Meaningful Through Student-Produced Videos

by Anne U. Gold, David J. Oonk, Lesley Smith, **Maxwell T. Boykoff**, Beth Osnes, and Susan B. Sullivan, *Journal of Geography* 0: 1–12, 2015

Abstract: Learning about climate change is tangible when it addresses impacts that can be observed close to home. In this program, sixty-four diverse middle and high school students produced videos about locally relevant climate change topics. Graduate and undergraduate students provided mentorship… Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2015.20.pdf

Climate Change Adaptation In Mumbai, India

by Emily Boyd, Aditya Ghosh, and **Maxwell T. Boykoff**, Chapter 8 in T*he Urban Climate Challenge: Rethinking the Role of Cities in the Global Climate Regime* (Edited by C. Johnson, N. Toly, H. Schroeder), Routledge Press 2015

This chapter connects the more formal and emergent climate adaptation governance regime operating at multiple calls to everyday urban space, in the case of reoccurring flood events in Mumbai (Bombay), India...the collective climate future of Mumbai links to that of the larger story arc of India. The chapter examines how this relationship scales up to the international community and extends to other cities and contexts in relation to climate adaptation governance.

Consensus and contrarianism on climate change: How the USA case informs dynamics elsewhere

by **Maxwell Boykoff**, *Metode*, April 2015

Abstract: Against a contrasting backdrop of consensus on key issues on climate science, a heterogeneous group dubbed climate «skeptics», «contrarians», «deniers» have significantly shaped contemporary discussions of climate science, politics and policy in the public sphere. This essay focuses on the USA context, and explores some of the intertwined social, political and economic factors, as well as cultural and psychological characteristics that have together influenced public attitudes, intentions, beliefs, perspective and behaviors in regards to climate change science and governance over time ... Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2015.29.pdf

Evaluating Informational Inputs in Rulemaking Processes: A Cross-Case Analysis

by **Deserai A. Crow**, Elizabeth A. Albright, and **Elizabeth Koebele**. *Administration & Society*, April 14, 2015

Abstract: As legislative venues are increasingly stymied by gridlock, much policymaking responsibility has devolved to the U.S. states. This article analyzes informational inputs and participation by actors within the rulemaking context, focusing on the level of state rulemaking. Specifically, we explore the rulemaking process in Colorado and North Carolina in two environmental sectors. Using data from documents and in-depth interviews, this study finds that goals of deliberative and open regulatory processes are not met in the cases studied here, in part due to informal pre-hearing processes established by agencies which can be navigated most successfully by the regulated community… Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2015.22.pdf

Learning Processes, Public and Stakeholder Engagement: Analyzing Responses to Colorado's Extreme Flood Events of 2013

by Elizabeth A. Albright and **Deserai A. Crow**, *Urban Climate*, 14 July 2015

Abstract: In early fall of 2013 in the Front Range of Colorado, several communities experienced intense rainfall over a three-day period, exceeding annual average precipitation rates. Extensive damage occurred to roads, infrastructure, parks, river corridors, homes and business throughout the region. Across the U.S. and in other nations, as population increases in flood-prone areas, flood risks and vulnerability are increasing as well. Successful response to extreme events may be due to policy learning—changes of beliefs, attitudes, behaviors, and goals – in response to new information and experiences. This learning can at times lead to adaptation of local policies to increase the resilience of communities faced with risk from extreme events. The extent of policy learning may depend on how communities engage with stakeholders and the public in post-disaster recovery. Using a comparative in-depth case study approach of seven Colorado communities, this study examines how communities actively engage stakeholders and the public in decision processes after an extreme event... Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2015.34.pdf

Wildfire Outreach and Citizen Entrepreneurs in the Wildland–Urban Interface: A Cross-Case Analysis in Colorado

by **Elizabeth Koebele**, **Deserai A. Crow**, Lydia A. Lawhon, Adrianne Kroepsch, **Rebecca Schild** and Katherine Clifford, *Society & Natural Resources: An International Journal*

Abstract: Due to rapid growth in the wildland-urban interface (WUI), the risk to lives and property from wildfires is increasing in the western United States. While previous studies have identified factors that influence residents' perceptions of wildfire risk and responsibility for mitigation, less research has been conducted on how mitigation information is disseminated to residents or the most effective strategies for doing so. During an examination of two case studies of catastrophic wildfires in Colorado, an important actor involved in wildfire outreach emerged that we label the citizen entrepreneur. Citizen entrepreneurs are highly motivated community members who can help resource-constrained wildfire agencies encourage mitigation on private property by directly engaging with WUI residents. Using data from interviews with wildfire professionals and focus groups with residents, this research note introduces the concept of citizen entrepreneurs and provides an initial examination of the important role they can play in wildfire outreach... Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2015.33.pdf

Research on Emissions, Air Quality, Climate, and Cooking Technologies in Northern Ghana (REACCTING): study rationale and protocol

by **Katherine L Dickinson**, Ernest Kanyomse, Ricardo Piedrahita, Evan Coffey, Isaac J Rivera, James Adoctor, Rex Alirigia, Didier Muvandimwe, MacKenzie Dove, Vanja Dukic, Mary H Hayden, David Diaz-Sanchez, Adoctor Victor Abisiba, Dominic Anaseba, Yolanda Hagar, Nicholas Masson, Andrew Monaghan, Atsu Titiati, Daniel F Steinhoff, Yueh-Ya Hsu, Rachael Kaspar, Bre'Anna Brooks, Abraham Hodgson, Michael Hannigan, Abraham Rexford Oduro and Christine Wiedinmyer, *BMC Public Health* 2015, 15:126

Abstract: Cooking over open fires using solid fuels is both common practice throughout much of the world and widely recognized to contribute to human health, environmental, and social problems. The public health burden of household air pollution includes an estimated four million premature deaths each year. To be effective and generate useful insight into potential solutions, cookstove

intervention studies must select cooking technologies that are appropriate for local socioeconomic conditions and cooking culture, and include interdisciplinary measurement strategies along a continuum of outcomes… Read more: http://www.biomedcentral.com/1471-2458/15/126 (*See Research Highlight above for further discussion of this project.*)

The Dynamics of Vulnerability: Why Adapting to Climate Variability Will Not Always Prepare Us for Climate Change

by **Lisa Dilling**, **Meaghan Daly**, William Travis, Olga Wilhelmi, and **Roberta Klein**, *WIREs Climate Change* 2015

Abstract: Recent reports and scholarship suggest that adapting to current climate variability may represent a 'no regrets' strategy for adapting to climate change. Addressing 'adaptation deficits' and other approaches that target existing vulnerabilities are helpful for responding to current climate variability, but we argue that they may not be sufficient for adapting to climate change. Through a review and unique synthesis of the natural hazards and climate adaptation literatures, we identify why the dynamics of vulnerability matter for adaptation efforts… Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2015.24.pdf

This paper was highlighted as a Nature Climate Change Research Highlight in Adaptation Policy: Forget No Regrets: http://www.nature.com/nclimate/journal/v5/n6/full/nclimate2675.html

EPO in cycling, HGH in the NFL - the complicated truths of cheating

by **Roger Pielke, Jr.** , *Sporting intelligence*, March 12.

Excerpt: Sport, it is often said, is a mirror to society. That is no more true than in the revelations found in the report of the cycling independent reform commission, which earlier this week released its report on doping in professional cycling. We may not like what we see when we look into that mirror. Here are three uncomfortable truths that the CIRC forces us to confront. A first uncomfortable truth: cheating is complicated… Read more: http://www.sportingintelligence.com/2015/03/12/epo-in-cycling-hgh-in-the-nfl-the-complicated-truths-of-cheating-120301/

Obstacles to Accountability in International Sports Governance

by **Roger Pielke, Jr.**, Chapter in *Global Corruption Report: Sport*, Edited by G. Sweeney, Transparency International, 2015

Excerpt: To understand why international sport organizations are so often the subject of allegations and findings of corruption it is necessary to understand the unique standing of these bodies in their broader national and international settings. Through the contingencies of history and a desire by sports leaders to govern themselves autonomously, international sports organizations have developed in such a way that they have less well developed mechanisms of governance than many governments, businesses and civil society organizations… Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2015.19.pdf

Fooling Ourselves with Science: Hoaxes, Retractions and The Public

by **Roger Pielke Jr.**, *The Guardian*, June 2, 2015

Excerpt: The past few weeks have seen some remarkable episodes in science. Through a hoax, evocative of the Sokal Affair of the mid-1990s, John Bohannon showed how trivially easy it is to start a popular meme based on science. Bohannon ginned up a fake study showing that eating chocolate leads to weight loss, got it published and then was able to promote it onto the pages of several newspapers and television news outlets… Read more: http://www.theguardian.com/science/political-science/2015/jun/02/fooling-ourselves-with-science

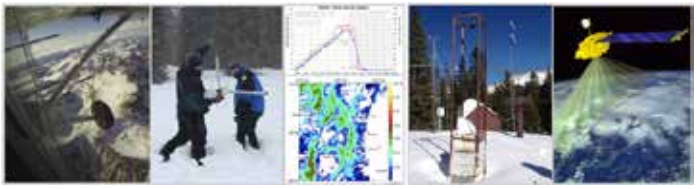
Is Science Policy A Theological Matter?

by Roger Pielke, Jr., *The Guardian*, June 23, 2015

Excerpt: With his latest statement on science, technology and the environment, Pope Francis has sought to change the debate on climate change. But his statement has broader significance for the way we think about the future. The Encyclical Letter Laudato Si' released by Pope Francis last week has generated a wide range of reactions ranging from enthusiastic praise to uneasy criticism... Read more: http://www.theguardian.com/science/political-science/2015/jun/23/is-science-policy-a-theological-matter

S&T OPPORTUNITIES

Western Water Assessment workshops



WWA and its partners are convening workshops focused on improving the usability of snowpack monitoring information for runoff forecasting, drought early warning and planning, and other applications. For more information and registration:

Wyoming workshop
Thursday, August 27 - Lander
http://wwa.colorado.edu/events/workshops/WYsnow2015.html

Colorado workshop
Wednesday, September 9 - Broomfield
http://wwa.colorado.edu/events/workshops/COsnow2015.html

Christine Mirzayan Science and Technology Policy Graduate Fellowship Program

The Christine Mirzayan Science & Technology Policy Graduate Fellowship Program, now in its 18th year, provides early career individuals with the opportunity to spend 12 weeks at the Academies in Washington, DC learning about science and technology policy and the role that scientists and engineers play in advising the nation.

Each year, applicants from around the world become part of an Academies' committee, board, or unit where they are assigned to a mentor and learn about the world of science and technology policy. An immersive experience, the program is designed to broaden fellows' appreciation of employment opportunities outside academia and leave them with both a firm grasp of the important and dynamic role of science and technology in decision-making and a better understanding of the role that they can play in strengthening the science and technology enterprise for the betterment of mankind.

Alumni of the program hold positions in Congressional committees and at federal agencies.

Learn more: http://sites.nationalacademies.org/PGA/policyfellows/index.htm

The Forum on Science Ethics and Policy
University of Colorado Boulder

The Forum on Science Ethics and Policy (FOSEP) is a student organization open to graduate students and postdocs of all disciplines. Our primary mission is to promote dialog within the scientific community about the relationship between science and policy. We believe a better understanding of major science policy issues from climate change to science agency funding as well as engagement with policy makers helps better connect scientific solutions to real-world problems. Whether you are interested in a career in policy or just want to talk politics over a beer, we look forward to seeing you at our events this semester. For more information please visit our website http://fosep.colorado.edu.

TECHNOLOGY ASSESSMENT AS POLITICAL MYTH?

PACITA 2nd European TA Conference: The Next Horizon of Technology Assessment

by Roger Pielke, Jr.

Video [52:24]: https://www.youtube.com/watch?v=kDUpWdoxhGU

Presentation Slides: http://slideslive.com/38893099/technology-assessment-as-political-myth

To view more CSTPR videos see: http://sciencepolicy.colorado.edu/news/multimedia.

Job Opportunities

Please see the Center's Jobs Page for a list of job opportunities:

http://sciencepolicy.colorado.edu/students/jobs

ABOUT US

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